

## CLAIMS

1. A media sheet, comprising:
  - a) a media substrate;
  - 5       b) an ink receiving layer applied as a coating to at least one surface of the substrate, said ink receiving layer comprising hollow particulates; and
  - c) a UV protection layer applied as a coating to the ink receiving layer, said UV protection layer including UV absorbing latex particulates.
- 10       2. A media sheet as in claim 1, wherein the ink receiving layer includes a binder for binding the hollow particulates.
3. A media sheet as in claim 1, wherein the UV protection layer includes a binder for binding UV absorbing latex particulates.
- 15       4. A media sheet as in claim 1, wherein the hollow particulates have a void volume from 30% to 70%.
5. A media sheet as in claim 1, wherein the hollow particulates are from  
20       0.3  $\mu\text{m}$  to 5  $\mu\text{m}$  in size, and have a glass transition temperature ( $T_g$ ) from 50°C to 120°C.
6. A media sheet as in claim 2, wherein the hollow particulate to hollow  
particulate binder ratio is from 95:5 to 50:50 by weight.
- 25       7. A media sheet as in claim 1, wherein the ink receiving layer is applied at from 5  $\text{g/m}^2$  to 40  $\text{g/m}^2$ .
8. A media sheet as in claim 1, wherein the UV absorbing latex  
30       particulates include at least one UV absorbing monomer, said UV absorbing monomer being an ethylenically unsaturated compound having a UV absorbing

group covalently attached thereto, said UV absorbing latex particulates having a UV absorbing monomer to diluent monomer ratio from 100:0 to 10:90 by weight.

9. A media sheet as in claim 8, wherein the UV absorbing latex  
5 particulates are copolymers including at least one non-UV absorbing monomer.

10. A media sheet as in claim 1, wherein the UV absorbing layer is applied at from 0.2 g/m<sup>2</sup> to 5 g/m<sup>2</sup>.

10 11. A media sheet as in claim 1, wherein the UV absorbing latex particulates have a strong absorbance between 300 nm to 420 nm, and a lower absorbance above 420 nm.

12. A media sheet as in claim 1, wherein the UV absorbing latex  
15 particulates are from 0.05 µm to 1 µm in size, and have a glass transition temperature (Tg) from 50°C to 120°C.

13. A system for preparing a fused ink-jet image, comprising:

a) a media sheet, including:

- 20 i) a media substrate;
- ii) an ink receiving layer applied as a coating to at least one surface of the substrate, said ink receiving layer comprising hollow particulates, and
- iii) a UV protection layer applied as a coating to the ink  
25 receiving layer, said UV protection layer including UV absorbing latex particulates;

b) a ink-jet ink including a dye, said ink-jet ink configured for printing onto the media sheet, wherein upon printing, the ink-jet ink substantially passes through the UV protection layer and is taken within voids of the hollow  
30 particulates; and

c) a fusion system configured for fusing the UV protection layer and the ink receiving layer after printing of the ink-jet ink.

14. A system as in claim 13, wherein the ink receiving layer includes a hollow particulate binder, said hollow particulate to hollow particulate binder ratio being from 95:5 to 50:50 by weight.

5

15. A system as in claim 13, wherein the hollow particulates have a void volume from 30% to 70%.

16. A system as in claim 13, wherein the hollow particulates are from 0.3  $\mu\text{m}$  to 5  $\mu\text{m}$  in size, and have a glass transition temperature ( $T_g$ ) from 50°C to 120°C.

10

17. A system as in claim 13, wherein the ink receiving layer is applied at from 5  $\text{g}/\text{m}^2$  to 40  $\text{g}/\text{m}^2$ .

15

18. A system as in claim 13, wherein the UV absorbing latex particulates include at least one UV absorbing monomer, said UV absorbing monomer being an ethylenically unsaturated compound having a UV absorbing group covalently attached thereto, said UV absorbing latex particulates having a UV absorbing monomer to diluent monomer ratio from 100:0 to 10:90 by weight.

20

19. A system as in claim 18, wherein the UV absorbing latex particulates are copolymers including at least one non-UV absorbing monomer.

25

20. A system as in claim 13, wherein the UV absorbing layer is applied at from 0.2  $\text{g}/\text{m}^2$  to 5  $\text{g}/\text{m}^2$ .

21. A system as in claim 13, wherein the UV absorbing latex particulates have a strong absorbance between 300 nm to 420 nm, and a lower absorbance above 420 nm.

30

22. A system as in claim 13, wherein the UV absorbing latex particulates are from 0.05  $\mu\text{m}$  to 1  $\mu\text{m}$  in size, and have a glass transition temperature ( $T_g$ ) from 50°C to 120°C.

5        23. A system as in claim 13, wherein the ink-jet ink is configured to substantially pass through the UV protection layer and fill voids within and between the hollow particulates.

10       24. A system as in claim 13, wherein the fusion system comprises a pair of rollers configured to apply heat and pressure to the media sheet after application of the ink-jet ink, thereby forming a fused ink-jet image.

25. A method of preparing a fused ink-jet image, comprising:  
a) ink-jetting an ink-jet ink onto a media sheet, said ink-jet ink including a  
15 dye, and said media sheet including an ink receiving layer and a UV protection layer, said ink receiving layer including hollow particulates, and said UV protection layer including UV absorbing latex particulates; and  
b) fusing the UV protection layer and the ink receiving layer after the ink-jetting step.

20

26. A method as in claims 25, wherein the fusing step is by applying heat and pressure to the media sheet having the ink-jet ink printed thereon.

25       27. A method as in claims 25, wherein the fusing step is by applying heat to the media sheet having the ink-jet ink printed thereon.

28. A method as in claim 25, further comprising the preliminary step of preparing the media sheet by applying the ink receiving layer on to the substrate, and subsequently applying the UV protection layer on to the ink receiving layer.

30

29. A method as in claim 25, wherein the ink-jetting step includes allowing the ink-jet ink to fill voids within and between the hollow particulates.

30. A method as in claim 25, wherein the fusing step causes the UV protection layer and the ink receiving layer to form a film that at least partially insulates the ink-jet ink from the surrounding air.

5

31. A method as in claim 25, wherein the fusing step causes the UV protection layer to form a film that at least partially insulates the ink-jet ink from the UV light.

10

15

20

25

30